REMARKS

Claims 1-37 are pending, claims 1-23 are withdrawn from consideration and claims 24-37 stand rejected.

Rejection Under 35 U.S.C. §112, Second Paragraph

Claims 30-37 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner noted that: "... the method of forming the azine polymer is set forth in pages 25-30 of applicants' specification and is a four step method with the co-polymerization of the azine compound of Formula II having two reactive ring groups with a bridging compound in the presence of triethylamine to form the charge transport material." This rejection is respectfully traversed.

Claim 30, from which claims 31-37 depend, is directed toward a method comprising the step of co-polymerizing a bridging compound having a bridging group and at least two functional groups with a charge transport material having the formula recited in the body of the claim. No reason is set forth in the Office Action explaining why this step is indefinite. It is asserted that one skilled in the art, equipped with the disclosure in the instant specification (including the disclosure on pages 25-30), would understand the metes and bounds of claim 30.

Moreover, the claim language of independent claim 30 includes the transitional phrase "comprising". The transitional phrase "comprising" is inclusive or open-ended and does not exclude additional unrecited elements or method steps. See *Invitrogen Corp. v. Biocrest Mfg., L.P.*, 327 F.3d 1364, 1368, 66 USPQ2d 1631, 1634 (Fed. Cir. 2003) ("The transition "comprising" in a method claim indicates that the claim is open-ended and allows for additional steps."). See also *Mars Inc. v. H.J. Heinz Co.*, 377 F.3d 1369, 1376, 71 USPQ2d 1837, 1843 (Fed Cir. 2004) ("like the term "comprising", the terms "containing" and "mixture" are open-ended."). Thus, claim 30 could encompass the four steps method referred to by the Examiner,

but does not need to specifically recite all four step in order to overcome an indefiniteness rejection.

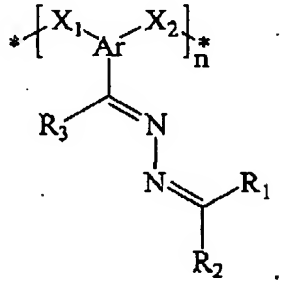
Finally, descriptions and explanations of an invention that are set forth in a specification are not to be imported into the claims. The Court of Appeals for the Federal Circuit has repeatedly warned that limitations set forth in the specification should not be imported into the claims. *Novartis Pharmaceuticals Corp. v. Apotex Corp.*, 2006 WL626058 (S.D.N.Y.), citing *Varco, L.P. v. Parson Sys. USA Corp.*, 436 F.3d 1368, 1373 (Fed. Cir. 2006); *CollegeNet, Inc. v. ApplyYourself, Inc.*, 418 F.3d 1225, 1231 (Fed. Cir. 2005). Therefore, the absence of the method steps referenced by the Examiner does not, by itself, render claims 30-37 indefinite. These claims should be examined in accordance with the limitations currently set forth without reference to the additional steps, except as explicitly set forth in these claims. Accordingly, reconsideration and withdrawal of the rejection of claims 30-37 under 35 U.S.C. §112, second paragraph, are respectfully requested.

Rejection Under 35 U.S.C. §102(a)

The Examiner rejected claims 24-37 under 35 U.S.C. §102(a) as being anticipated by any of Law et al 20030113644 (now U.S. Patent No. 6,689,523) or EP1 310 489. The Examiner asserted that the cited references teach an azine polymer and a method of making the polymer; the polymer being a dimer having two hydrazine groups.

To establish a *prima facie* case of anticipation every element of the claim must be found in a single prior art reference. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ...

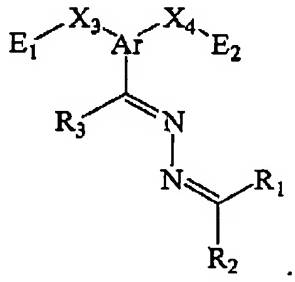
claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). MPEP §2131.

Independent claim 24 includes a polymer having the structure 

The structure includes a >=N–N=< structure, which represents the general structure for an ***azine***. The organophotoreceptor disclosed in U.S. 6,689,523 and EP 1 310 489 does not include the same structure. The structure disclosed in U.S. 6,689,523 and EP 1 310 489 is a ***hydrazone*** and does not include the >=N–N=< structure, in particular, the two nitrogens with double bonds. The hydrazone structure is represented by the structure >=N–N–<. Further, the general structure disclosed in U.S. 6,689,523 and in EP 1 310 489 does not allow for a double bond at the underlined nitrogen, >=N–N–<. Moreover, the charge transport material of claim 24 includes two linking groups, whereas the structure of the compounds in U.S. 6,689,523 and EP 1 310 489 discloses a sulfonyldiphenylene group (or derivative) linking the two hydrazones. Therefore, U.S. 6,689,523 and EP 1 310 489 do not disclose the transport material in independent claim 24, or all the elements of independent claim 24.

Because U.S. 6,689,523 and EP 1 310 489 do not disclose each and every element of independent claim 24, claim 24 is not anticipated by either the U.S. 6,689,523 or the EP 1 310 489 reference. Claims 25-29 depend from independent claim 24 and, therefore, contain all the limitations of claim 24. Hence, claims 25-29 are also not anticipated by the U.S. 6,689,523 or EP 1 310 489 reference. Therefore, reconsideration and withdrawal of the rejection of claims 24-29 under 35 U.S.C. §102(a) are respectfully requested.

Independent claim 30 is directed toward a method for forming a charge transport material, the method including co-polymerizing a bridging compound having a bridging group and at least two functional groups with a charge transport material having the formula



U.S. Patent 6,689,523 and EP 1 310 489 do not disclose a method of making or a synthesis process for a charge transport material that includes co-polymerizing a bridging compound having a bridging group and at least two functional groups with a charge transport material with the above structure, where E_1 and E_2 are each a reactive ring group. The methods disclosed in U.S. 6,689,523 and EP 1 310 489 do not require co-polymerization of a bridging compound and do not describe a charge transport compound with two reactive ring groups. (See e.g. Col. 7, lines 10-58).

Because neither U.S. 6,689,523 nor EP 1 310 489 disclose each and every element of independent claim 30, claim 30 is not anticipated by these references. Claims 31-37 depend from independent claim 30 and therefore contain all the limitations of claim 30. Therefore, claims 31-37 are also not anticipated by the U.S. 6,689,523 or EP 1 310 489 reference. Therefore, reconsideration and withdrawal of the rejection of claims 31-37 under 35 U.S.C. §102(a) are respectfully requested.

Double Patenting Rejections

The Examiner provisionally rejected claims 24-37 on the ground of nonstatutory double patenting over claims of copending Application No. 10/832,596; 749,269; 749,178; 670,943; 671,255; 670,483; 663,971; 982,320; 760,039; and 804,719. The Examiner asserted that the subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the instant application and the referenced copending application allegedly are claiming common subject matter; a polymer (dimer) having an azine-based charge transport material. The rejections are respectfully traversed.

An obviousness-type double patenting rejection should make clear the differences between the inventions defined by the conflicting claims – a claim in the patent (or application in the case of provisional double-patenting rejection) compared to a claim in the application and the reasons why a person of ordinary skill in the art would conclude that the invention defined in the claim at issue would have been an obvious variation of the invention defined in a claim in the patent. (See MPEP §804.) It is respectfully asserted that such an analysis of the presently claimed invention to each of the subject copending applications has not been provided in the Office Action. The information provided regarding the copending applications alleges only that azine-based charge transport materials appear to be disclosed without specific reference. Nevertheless, each application will be addressed in turn.

The '596 Application

Application No. 10/832,596 (now U.S. Published Application 2005/0238978; "the '596 application") discloses a charge transport material including two azine groups, each independently bonded to two arylamine groups. The '596 application does not disclose or even suggest a charge transport material structure with two reactive ring groups, nor does the '596

application disclose or even suggest forming the charge transport material by reacting two reactive ring groups such that the resultant polymer charge transport material includes two linking groups. Further, the '596 application does not disclose a repeating polymer structure. Hence, the charge transport material and the method of forming the charge transport material of the instant application are patentably distinct.

The '269 Application

Application 10/749,269 (now U.S. Published Application No. 2005/0147905; "the '269 application") discloses a charge transport material with two epoxidated-hydrazone groups. The charge transport material of the '269 application contains a hydrazone structure and not an azine structure. Hence, the charge transport material of the '269 application is not an azine, but a hydrazone. Further, the '269 application describes the charge transport material as having two epoxy groups bonded through a bridging group to a nitrogen atom of a hydrazone group (Col. 1, paragraph [0001]) not an azine group. Further, the '269 application does not disclose or even suggest two linking groups forming a poly-azine. Hence, the basic structure of the two charge transport materials is distinct and patentably different, as is the process for forming the two charge transport materials.

The '178 Application

Application 10/749,178, (now U.S. Patent 7,014,968; "the '178 application") discloses a charge transport material comprising at least a thiiranyl group. The '178 application does not disclose or even suggest the step of co-polymerization of an azine compound having two reactive ring groups (e.g. epoxy groups or thiiranyl groups) with a bridging compound to form the charge transport material disclosed in the instant application. The bridging compound has a bridging group and at least two functional groups that are reactive towards the reactive ring groups. Further, the two linking groups of the charge transport materials of the instant application are

bonded to the same aromatic group, unlike the structure of the azine of the '178 application. Hence, the structure of the two charge transport materials is distinct and patentably different, as is the process for forming the two charge transport materials.

The '943 Application

Application No. 10/670,943 (now U.S. Patent 6,955,869; "the '943 application") discloses a charge transport material having two azine groups. The charge transport material of the '943 application is formed by the reaction of a bis(3-formyl-9-carbazolyl)alkane or its derivative and the hydrazone of a fluorenone-carboxylic acid alkyl ester. The '943 application does not disclose or even suggest co-polymerization of an azine compound having two reactive ring groups (e.g. epoxy groups or thiiranyl groups) with a bridging compound to form the charge transport material disclosed in the instant application. The bridging compound has a bridging group and at least two functional groups that are reactive towards the reactive ring groups. Further, the '943 application does not disclose or even suggest a charge transport material structure with two linking groups bonded to the same aromatic group. The charge transport materials and their formation described in the '943 application and the instant application are patentably distinct.

The '255 Application

Application No. 10/671,255 (now U.S. Patent No. 7,011,917; "the '255 application") discloses a charge transport material with at least two bis(9-fluorenone) azine groups. One double-bonded nitrogen of the azine group is bonded to the 9-fluorenone group and the other double-bonded nitrogen of the azine group is bonded to a fluorenylidene group. Neither of the double-bonded nitrogens of the azine group of the '255 application is bonded to an aromatic group that is, in turn, bonded to two linking groups. The method of forming the charge transport material of the '255 application includes reacting 9-fluorenone-4-carbonyl chloride or a

derivative, with a dihydroxyl compound, a dithiol compound, or a diamino compound, in solvent, to form a dimeric fluorenone derivative. The dimeric fluorenone derivative is reacted with a fluorenone hydrazone derivative to form a dimeric bis(9-fluorenone)azine derivative of the '255 application. (Col. 19, lines 2-13). The '255 application does not disclose or even suggest co-polymerization of an azine compound having two reactive ring groups (e.g. epoxy groups or thiiranyl groups) with a bridging compound to form the charge transport material disclosed in the instant application. The bridging compound has a bridging group and at least two functional groups that are reactive towards the reactive ring groups. Hence, the charge transport materials and their formation described in the '255 application and the instant application are patentably distinct.

The '483 Application

Application No. 10/670483 (now U.S. Patent 7,037,632; "the '483 application") discloses a charge transport material with at least two fluorenone azine groups. The '483 application does not disclose or even suggest co-polymerization of an azine compound having two reactive ring groups (e.g. epoxy groups or thiiranyl groups) with a bridging compound to form the charge transport material disclosed in the instant application. The bridging compound has a bridging group and at least two functional groups that are reactive towards the reactive ring groups. The '483 application discloses a charge transport material formed by the reaction of 9-fluorenone-4-carbonyl chloride, or a derivative, with a dihydroxyl compound, a dithiol compound, or a diamino compound in a solvent, to form a dimeric fluorenone derivative. A hydrazone derivative is formed by the reaction of hydrazine with an aldehyde or ketone. The dimeric fluorenone derivative is reacted with the hydrazone derivative to form the dimeric fluorenone azine derivative. (Col. 17, lines 53-65). Neither of the double-bonded nitrogens of the azine group of the '483 application is bonded to an aromatic group that is, in turn, bonded to two

linking groups. Hence, the charge transport materials and their formation described in the '483 application and the instant application are patentably distinct.

The '971 Application

Application No. 10/663,971 (now U.S. Published Application No. 2005/0058920; "the '971 application") discloses a charge transport material with at least two azine groups. However, neither of the double-bonded nitrogens of the azine group of the '971 application is bonded indirectly to an aromatic group that is, in turn, bonded to two linking groups. Further, the method of forming the charge transport material of the '971 application can involve the formation of an epoxy derivatized azine, however the azine contains only one epoxy group. (paragraphs [0060]-[0063]). Further, there is only one bridging group, the E group (bridging group between the azine compounds), forming a dimer. The bridging group E is not repeated. The charge transport material of the '971 application does not allow for larger polymers than a dimer, and does not allow for two linking groups. Hence, the charge transport materials and their formation described in the '971 application and the instant application are patentably distinct.

The '320 Application

Application 10/982,230 (now U.S. Published Application No. 2005/0058917; "the '320 application") discloses a charge transport material with at least two carbazolecarboxaldehyde substituted hydrazone groups. The '320 application does not disclose or even suggest an azine-based charge transport material, but a hydrazone-based charge transport material. The '320 application does not disclose or even suggest co-polymerization of an azine compound having two reactive ring groups (e.g. epoxy groups or thiiranyl groups) with a bridging compound to form the charge transport material disclosed in the instant application. The bridging compound has a bridging group and at least two functional groups that are reactive towards the reactive ring

groups. Hence, the charge transport materials and their formation described in the '320 application and the instant application are patentably distinct.

The '039 Application

Application No. 10/760,039 (now U.S. Patent 7,115,347; "the '039 application") discloses a charge transport material comprising at least two azine groups bonded together through a linking group. The '039 application does not disclose or even suggest co-polymerization of an azine compound having two reactive ring groups (e.g. epoxy groups or thiiranyl groups) with a bridging compound to form the charge transport material disclosed in the instant application. The bridging compound has a bridging group and at least two functional groups that are reactive towards the reactive ring groups. Further, neither of the double-bonded nitrogens of the azine group of the '039 application is bonded indirectly to an aromatic group that is, in turn, bonded to two linking groups. The two linking groups of the charge transport material of the instant application are repeated in the polymer. Hence, the charge transport materials and their formation described in the '039 application and the instant application are patentably distinct.

The '719 Application

Application No. 10/804,719 (now U.S. Published Application 2004/0241562; "the '719 application") discloses a charge transport material comprising two fluorenone azine groups. The charge transport material of the '719 application can be prepared by reacting a 9-fluorenone or a derivative compound with hydrazine to produce a 9-fluorenone hydrazone compound or derivative. The 9-fluorenone hydrazone reacts with a linking compound having 2 aldehyde groups or ketone groups, or a quinine derivative, or a diphenoquinone derivative. Alternatively, two different 9-fluoreonone hydrazone derivatives can be reacted with a linking compound having 2 aldehyde groups, two ketone groups, a quinine derivative or a diphenoquinone

derivative. (Paragraphs [0075] – [0076]). The '719 application does not disclose or even suggest co-polymerization of an azine compound having two reactive ring groups (e.g. epoxy groups or thiiranyl groups) with a bridging compound to form the charge transport material disclosed in the instant application. The bridging compound has a bridging group and at least two functional groups that are reactive towards the reactive ring groups. Further, neither of the double-bonded nitrogens of the azine group of the ''719 application is bonded indirectly to an aromatic group that is, in turn, bonded to two linking groups. The two linking groups of the charge transport material of the instant application are repeated in the polymer. Hence, the charge transport materials and their formation described in the '719 application and the instant application are patentably distinct.

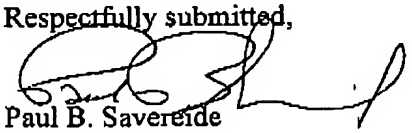
Based upon the above comments, reconsideration and withdrawal of the obviousness-type double patenting rejection of claims 24-37 over claims of copending Application Nos. 10/832,596; 749,269; 749,178; 670,943; 671,255; 670,483; 663,971; 982,320; 760,039; and 804,719 are respectfully requested.

CONCLUSION

In view of the foregoing, it is submitted that this application is in condition for allowance. Favorable consideration and prompt allowance of the application are respectfully requested.

The Examiner is invited to telephone the undersigned if the Examiner believes it would be useful to advance prosecution.

Respectfully submitted,



Paul B. Savereide
Registration No. 36,914

Customer No. 24113
Patterson, Thuente, Skaar & Christensen, P.A.
4800 IDS Center
80 South 8th Street
Minneapolis, Minnesota 55402-2100
Telephone: (612) 252-1550